

# Lockheed Martin Idaho Technologies Company

## INTERDEPARTMENTAL COMMUNICATION

Date:

July 26, 1999

To:

D. J. Kuhns

MS 3920

6-8226

From:

T. E. Sivil

MS 3655

6-9273

Subject:

WAG 1 OU 1-10 SITE V9/18 DRAFT ROD COST ESTIMATE - TES-05-99

Reference:

Transmittal to T. S. Green from T. E. Sivill, WAG OU 1-10 RI/FS Remedial

Alternatives, TES-3-97, dated September 8, 1997.

Cost Estimating has provided a Planning Cost Estimate for the project referenced above. Costs are summarized in a similar format to the RI/FS estimate for comparison purposes.

Costs are based on information and guidance provided by program personnel. The attached recapitulation sheet outlines the general scope information and identifies the major scope and cost deltas from the FS cost estimate referenced above. Costs have been presented in FY 99 dollars, escalated dollars and discounted to reflect a net present value for comparison purposes.

Should you have any questions, please contact Terry Sivill, ID-TES or 526-9273.

TES

Attachments

cc: B. J. Broomfield MS 3915 Alfon Box

T. E. Sivill File

Estimate File 6950-4

Lockheed Martin Idaho Technologies Company

# **COST ESTIMATE SUPPORT DATA RECAPITULATION**

Project Title: WAG 1 OU1-10 SITE V9/18 DRAFT ROD ESTIMATE

Estimator: TES/KLS
Date: 7-26-99

Estimate Type: PLANNING File: 6950-4

Approved By: Approved By:

I. <u>SCOPE OF WORK</u>: Brief description of the proposed project.

Prepare a Rough Order of Magnitude Planning Cost Estimate for the above mentioned project. The estimate focuses on TAN WAG 1 - TSF-09/18 (V-Tanks), Alternative 4 Vitrification Option. This estimate provides an update to the RI/FS Cost Estimate Site, dated 9/8/97, and incorporates new scoping requirements provided to cost estimating the week of 5-17-99 thru 5-20-99.

II. BASIS OF THE ESTIMATE: Drawings, Design Report, Engineers Notes and/or other documentation upon which the estimate is originated.

The WAG 1 OU1-10 RI/FS REMEDIAL ALTERNATIVES Cost Estimate, dated 9-8-97.

Scoping and assumptions outline provided by the ER project engineer.

Coordination meeting with WAG 1 program management team.

III. <u>ASSUMPTIONS</u>: Conditions statements accepted or supposed true without proof of demonstration. An assumption has a direct impact on total estimated cost.

The general project assumptions and remedial action alternatives general descriptions outlined in the RI/FS estimate still apply. Listed below are the specific assumptions addressing the scoping requirements as currently defined.

Total Capital Costs in current year dollars, (before contingency), reflects a net increase of \$3,479,000. Listed below are the scope/cost deltas:

- 1. Program Management cost remains the same as stated in the RI/FS.
- 2. Remedial Action (RA) Documentation, (RD/RA SOW and RA Work-plan), Remedial Action Reports, WAG initial 5 year review and RD documentation including the Health and Safety Plan, Sample and Analysis Plan and Pre-final Inspection Report have been revised. Costs are assumed similar to those utilized for the WAG-5 vitrification option documentation. Costs reflect a net increase of \$187,000.

### COST ESTIMATE SUPPORT DATA RECAPITULATION

Continued -

Project Title: WAG 1 OU1-10 SITE V9/18 DRAFT ROD ESTIMATE

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## 3. Remedial Design Activities:

- Initial Review of Deed Restrictions has been included as new scope. It is assumed with the new requirements for out-year (100 years) surveillance and monitoring a review of the current deed restrictions will need to be included. Costs are assumed similar to those utilized for the WAG-5 vitrification option documentation. Costs reflect a net increase of \$32,000.
- The Title Design construction document package in the RI/FS estimate included design of site preparation, temporary utilities (Primarily electrical power), temporary lay-down and decon areas for the ISV subcontractor. The current estimate includes RI/FS estimate items plus the revised scope as listed below:
- Design of a refractory and/or thermal barrier protecting nearby structures.
- Design of shoring and piling system around the 80' x 50' site protecting existing facility foundation and footings from subsidence during installation of the thermal barrier system.
- Design of tank vent system in conjunction with the ISV subcontractor.
- Assist the ISV subcontractor in determining the placement of starter planes for initial melting operation.
- Removal, treatment/disposal of contaminated soils and existing underground piping
- Design of soil cap and monitoring wells required for out-year surveillance and monitoring activities.
- Costs reflect a net increase of \$165,000.
- 4. Remedial Action Construction Subcontract Activities:
- Site characterization scope includes additional soil/tank samples. Costs reflect a net increase of \$100,000.
- The construction/remedial action subcontracts included in the RI/FS estimate included site-work and utilities, ISV remedial action subcontract and LMITCO support during mobilization, treatment and demobilization of treatment. The current estimate includes the RI/FS items plus the revised scope as listed below:
- Construction of shoring and piling system around the 80' x 50' site protecting existing facility
- Construction of a refractory and/or thermal barrier to protect nearby structures along both sides of the tanks.
- Construction of tank vent system in conjunction with the ISV subcontractor
- Assist the ISV subcontractor in determining the placement of starter planes for initial melting operation.
- Removal, treatment/disposal of contaminated soils and existing underground piping systems.
- ISV includes and additional top down melt of contaminated soils.
- Construction of a soil cap and monitoring wells required for out-year surveillance and monitoring activities. Cap is assumed to be a 6 ft deep soils cap with natural vegetation and four monitoring wells similar to the WAG-5 FS.
- Scope includes secondary waste treatment/disposal not addressed in the FS scope/cost.
- Costs reflect a net increase of \$2,577,000.

## COST ESTIMATE SUPPORT DATA RECAPITULATION

Continued –

Project Title: WAG 1 OU1-10 SITE V9/18 DRAFT ROD ESTIMATE

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- 5. Remedial Action The Project/Construction Management and RA Operations Oversight Activities:
- For the above mentioned construction and operations activities project/construction management and operations oversight costs reflect a net increase of \$418,000.
- 6. Operations assumes added scope including:
- Added Program Management for a 100 Year duration. Costs reflect a net increase of \$254,000.
- Added 5-year review for a 100 year duration (Previously referred to as Annual Operations and Maintenance Reports). Costs reflect a net increase of \$822,000.
- New caretaker/maintenance of the cap, fencing and monitoring wells for a 100 year duration. Costs reflect a net increase of \$2,041,000.
- Surveillance and Monitoring costs in the RI/FS estimate included minimal costs sampling and analysis, 5-year reviews and inspection/maintenance of fencing around site. The majority of these costs are now reflected in the current estimate under caretaker/ maintenance activities. Due to the shifting of dollars to caretaker inspections and maintenance costs reflect a decrease of (-\$330,000)
- Total Operations Cost in current year dollars, (without contingency), reflects a net increase of \$3,287,000.
- IV. <u>CONTINGENCY GUIDELINE IMPLEMENTATION</u>: The percentage used for contingency as determined by the contingency allowance guidelines can be altered to reflect the type of construction and conditions that may impact the total estimated cost.

Contingency has been included at the same 30% as the RI/FS estimate. Due to the added scope and cost items the 30% factor on the Capital Dollars increased contingency by approximately \$1,000,000 and Operating Dollars increased by approximately \$990,000.

## V. OTHER COMMENTS/CONCERNS SPECIFIC TO THE ESTIMATE

The estimate has been prepared with less than 5% scope definition.

The refractory/thermal barrier was discussed in general terms with the ISV vendor. Costs have been included for a 6" thick refractory wall with a 12" thick gravel passive ventilation barrier located directly behind the refractory wall. Both are assumed installed on both the east and west side of the tanks down to a depth of 20 ft.

Costs included for treatment/disposal of secondary waste has been included as an allowance. No vendor quotes were available at the time of issue.

	idaha Technolog v 10-00	iles Ca.	SUMMARY COST ESTIMA	ATE SHEET			•		
Pro	ject	WAG-1 OU 1-10 SITE V9/18 DRAFT ROD COST	ESTIMATE						
	•	WASTE SITE V-9/18 - VITRIFICATION OPTION		Type of Est.	Planning	File No.	6950-4	Date:	07/26/99 HS
Loc	cation	TAN - INEEL		,,po 0, 200	, laining	1 110 110.		Checked By:	
	quester	D. J. KUHNŞ							
CCT.	DESCRIPTION		VITRIFICATION						
NO.									
	<u> </u>		ALT. 4						
	CAPITA	L COST SUBTOTAL	11,511,991		•				
		Contingency @ 30%	3,453,597						
	TOTAL	CAPITAL COST IN FY97 DOLLARS	14,965,588	****					
	TOTAL	CAPITAL COST IN ESCALATED DOLLARS	17,005,584						,
	TOTAL	CAPITAL COST IN NET PRESENT VALUE	13,445,948						
	O&M C	DST SUBTOTAL	4,880,200						
···		Contingency @ 30%	1,464,060	<u></u>	<u>.                                    </u>			<del>-</del> -	
	TOTAL	O&M COST IN FY97 DOLLARS	6,344,260						
	TOTAL	O&M COST IN ESCALATED DOLLARS	42,204,878						
	TOTAL	O&M COST IN NET PRESENT VALUE	2,458,020						
	TOTAL	PROJECT COST IN NET PRESENT VALUE	15,903,968		1 (B)   0 (1)				
	******							•	

#### Lockheed Martin Idaho Technologies Co.

#### SUMMARY OF DETAILED COST ESTIMATE

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-	WAG-1 OU 1-10 SITE V9/18 DRAFT ROD COST ESTIMATE	Тур	of Est.	Planning	File No.	6950-4	Date	07/26/99
	WASTE SITE V-9/18 - VITRIFICATION OPTION	Source	(E) Eng. Est.				Prep'd By	TES/KLS
Location	TAN - INEEL		(V) Vendor				• •	
Requester	D. J. KUHNS		(P) Pur. Orde	r				

		ALTERNATIVE 4		
ACCT.		VITRIFICATION		
NO.	DESCRIPTION	THE IDATION		
		1		
ER1220	FFA/CO Management and Oversight			
	Program Management	500,000		
	RA Document Preparation			
	RD/RA SOW	54,000		
	RA Workplan	63,000		
	Packaging, Shipping, Trans. Documentation	N/A	······································	
	Remedial Action Report	48.000	<del></del>	
	WAG-Wide RA - 5 Yr, Reviews	141,000		
	RD Documentation Preparation			<del></del>
	Safety Analysis Documentation (ASA & HSP)	76,500		
	Sampling and Analysis Plan	54,000		
	Pre-Final Inspection Report	7,500		
ER1210	Remedial Design			
	Initial Review of Deed Restrictions	32.000		<del></del>
	Title Design Construction Document Package	221,720		
ER1230	Remedial Action - Construction Subcontract			·
	Site Characterization	100,000		
	Construction Subcontract	9,606,491		
	Project/Construction Management	607,780		
	TOTAL CAPITAL COST	11,511,991		
ER1230	Remedial Action - Operations (100 Year Duration)			
	Program Management	1,692,000		-
	WAG-Wide RA - 5 Yr. Review For 100 Years	897,000		
	Added Institutional Controls - 5 Yr. Review For 100 Years	NA NA		
	Continued/New Construction Caretaker/Maintenance	2,041,200		<del>-  </del>
	Operations, Maintenance, Materials, and Disposal	N/A		
ER2000	D&D of Facilities	N/A		·
ER1310	Surveillance and Monitoring	250,000		
	TOTAL OPERATIONS COST (100 YEARS)	4,880,200		

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D. J. KUHNS

Project

WAG-1	OU 1-10 SITE	V9/18 DRAFT RO	D COST ESTIMATE
WASTE	SITE V-9/18	- VITRIFICATION	OPTION
TAN -	INEEL		

Type of Est.

Planning

File No.

6950-4

Date

ACCT.	DESCRIPTION	E,V,	MAT'L	MAT'L UT.	UNIT LAB.	TOTAL	LABOR	LABOR	MAT'L	OTHER	TOTAL
NO.		P,H	UNIT	COST	HRS	LAB. HRS.	RATE	COST	COST	COST	COST
	FFA/CO Management and Oversight										0001
	Program Management								<del></del>	<del>  -</del>	
	Coordination/Oversight of Technical Support		1 fte		640	640	75	48,000		<del></del>	48,00
	Coordination with Agency Participants		1 fta		320	320	75			<del>  </del>	24,00
	Cost and Schedule Control		1 fte		320	320	65	20,800		<del>  </del>	
	Ensure Compliance of Gov't Regulation		1 fte		160	160	70			<del>                                     </del>	20,80
	Quarterly and Yearly Reviews		1 fte	<del></del> -	160	160	65	10,400		<del>                                     </del>	11,20
	Audit Preparation and Coordination		1 fte	<del> </del>	160	160	65	10,400		<del>  </del>	10,40
	Total Cost (Per Year)					100		10,400			10,40
-·	Total Cost (Per Year Rounded)		<del></del>	<del></del>						<del></del>	124,80
	Program Management - 4 Year Duration		4 yr	125,000					500,000	<del>  </del>	125,00
									300,000	<del> </del>	500,00
			·	<del></del>						<del> </del>	<del></del>
										<del>                                     </del>	<del></del>
				1						<del>                                     </del>	
	RA Document Preparation			l				·		<del></del>	<del></del> -
	RD/RA SOW			· · · · · · · · · · · · · · · · · · ·		<del></del>				<del></del>	
·	PreDesign Studies/Preliminary Scoping		3 fte	<del></del>	BC	240	75	18,000			
	Design Criteria		1 fte		40	40	75				18,0
	RD/RA Document Preparation		1 fte		80	80	75				3,0
	Reviews and Comment Resolution		1 fte	, <u> </u>	360	360	75				6,0
	RD/RA SOW Cost						/3	27,000		-	27,00
			· *·								54,0
						<del></del>	~				<del></del> .
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	RA Workpian		12.12.							<del></del>	
	Preliminary Scoping		1 fte	<del></del>	160	160	75	10.000			
	RD/RA Document Preparation		1 fte		260	260	75 75	12,000		<del></del>	12,00
	Reviews and Comment Resolution	<del></del>	1 fte		420	420	75	19,500 31,500			19,50
	RA Workplan Cost				720	720	/8	31,500			31,50
		<del>-  -  </del>		<del></del>						<del></del>	63,00
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**Project** 

WAG-1 OU 1-10 SITE V9/18 DRAFT ROD COST ESTIMATE

WASTE SITE V-9/18 - VITRIFICATION OPTION

TAN - INEEL D. J. KUHNS Type of Est.

Planning

Date

6950-4

ACCT.	DESCRIPTION	E.V.	MAT'L	MAT'L UT.	UNIT LAB.	TOTAL	LABOR	LABOR	MATL	OTHER	TOTAL
NO.		P,H	UNIT	COST	HAS	LAB. HRS.	RATE	COST	COST	COST	COST
	RA Document Preparation (cont)				î					-	- 000.
	Packaging, Shipping, Transportation Documentation									<del>                                     </del>	
	Sampling and Analysis		·			-				<del> </del>	N/A
	Hazard Classification									<del>                                     </del>	N/A
	Selection and Procurement of Packaging				1					<del> </del>	N/A
	Packaging, Shipping, Transportation Documentation Cost			i						<del> </del>	N/A
								-		<del> </del>	
	Remedial Action Report										
	RA Report Preparation		1 fte	1	320	320	75	24,000			24,000
	Reviews and Comment Resolution		1 fte		320	320	75			1	24,00
	RA Report Cost										48,00
				1						<del>                                     </del>	,
										1	
	WAG-Wide RA 5 Yr. Review - (Cost Includes (1) FTE For (1) yr for the state of the s	ihe Initial Rev	lew							T	
	RA Report Preparation		1 yr		1,440	1,440	75	108,000			108,00
	Reviews and Comment Resolution		1 yr		440	440	75			<del>                                     </del>	33,00
	WAG-Wide RA 5 Yr. Reviews For 100 Years										141,00
_				1	1						
	RD Document Preparation									1 -	<del></del>
	Safety Analysis Documentation (ASA & HSP)		-		1					<del>                                     </del>	
	Auditable Safety Analysis/Hazards Classification		1 fte	1	160	160	75	12,000			12.00
	Unresolved Safety Questions		1 fte		160	160	75			<del>  </del>	12,00
	Quality Assurance		1 fto	1	30	30	75				2,25
	Reviews and Comment Resolution		2 fte		335	670	75				50,25
	Safety Analysis Documentation Cost										76,50
										<u> </u>	
	Sampling and Analysis Plan										<del>.</del>
	Pretrninary Scoping		0.5 fte		320	160	75	12,000			12,00
	Field Sampling Plan Preparation		0.5 fte		400	200	75	15,000		1	15,00
	Reviews and Comment Resolution		0.5 fte		720	360	75	27,000		1 1	27,00
	Sampling and Analysis Plan Cost				1					<del>                                     </del>	54,000

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D. J. KUHNS

Project

WAG-1 OU 1-10 SITE V9/18 DRAFT ROD COST ESTIMATE
WASTE SITE V-9/18 - VITRIFICATION OPTION
TAN - INEEL

Type of Est.

Planning

File No.

6950-4

Date

ACCT.	DESCRIPTION	E,V,	MAT'L	MAT'L UT.	1007145					· · · · · · · · · · · · · · · · · · ·	
NO.		P,H	UNIT	COST	UNIT LAB. HAS	TOTAL	LABOR	LABOR	MAT'L	OTHER	TOTAL
	RD Document Preparation (continued)		ONII	COST	HHS	LAB, HRS.	RATE	COST	COST	cosr	COST
	Pre-Final inspection Report						<del> </del>			<del> </del>	
	Checklist Preparation		1 fte		40		<u>-</u>				
	Reviews and Comment Resolution		1 fte		60	40 60	75 75	3,000			3,00
	Pre-Final Inspection Report Cost		1 110				/5	4,500			4,50
					-		<del>-  </del>				7,50
					<del> </del>			_		<del> </del>	
	Remediai Design				<del> </del>		<del></del>		<u> </u>		
	initial Review of Deed Restrictions with Governing Bodies and	d Public Comment			<u> </u>	-	<del></del>				<del></del>
	Legal Attorney and Env. Affairs at \$32K ea.	T T	1 ea	32,000	Γ				32,000		
	Deed Restrictions Cost			02,000	<del></del> -				32,000		32,00
							·		····	<del></del>	32,0
		<del></del>			<del> </del>				· · · · · · · · · · · · · · · · · · ·	<del> </del>	
	Conceptual/Title Design Construction Document Package - Fo	or Construction Subc	contract		l	<u> </u>				<del> </del>	
	Conceptual/Title Design Construction Document Package - For										
	Design drawings and specifications shall include : Design of Site or	ecaration, utilities, the		preparation (ne	w veril location	Vinstaliation, fill o	composition), I	solation/remo	val of undergrou	ınd piping	
		ecaration, utilities, the	rmal barriers, tani	c preparation (ne	·	· · · · · · · · · · · · · · · · · · ·		<u> </u>	ral of undergrou	and piping	
	Design drawings and specifications shall include: Design of Site pr systems, removal of surrounding contaminated soils and site rectar	ecaration, utilities, the	rmal barriers, tani		320	320	75	24,000		and piping	
	Design drawings and specifications shall include: Design of Site pr systems, removal of surrounding contaminated soils and site rectar Remedial Design Workplan	ecaration, utilities, the	rmal barriers, tani 1 fts 1 fte	preparation (ne	320 320	320 320	75 65	24,000 20,800	ral of undergrou	and piping	21,12
	Design drawings and specifications shall include: Design of Site pr systems, removal of surrounding contaminated soils and site rectar Remedial Design Workplan Research and Review Existing Site Conditions	ecaration, utilities, the	mal barriers, tani 1 fts 1 fte 1 ske	320	320	320	75	24,000	320	and piping	21,12 1,60
	Design drawings and specifications shall include: Design of Site pr systems, removal of surrounding contaminated soils and site rectar Remedial Design Workplan Research and Review Existing Site Conditions Siting and Surveying	ecaration, utilities, the	rmal barriers, tani 1 fts 1 fte		320 320	320 320	75 65	24,000 20,800		nd piping	21,12 1,60 175,00
	Design drawings and specifications shall include: Design of Site pr systems, removal of surrounding contaminated soils and site rectar Remedial Design Workplan Research and Review Existing Site Conditions Siting and Surveying Procurement Document Package	ecaration, utilities, the	mal barriers, tani 1 fts 1 fte 1 ske	320	320 320	320 320	75 65	24,000 20,800	320	nd piping	21,11 1,60 175,00
	Design drawings and specifications shall include: Design of Site pr systems, removal of surrounding contaminated soils and site rectar Remedial Design Workplan Research and Review Existing Site Conditions Siting and Surveying Procurement Document Package	ecaration, utilities, the	mal barriers, tani 1 fts 1 fte 1 ske	320	320 320	320 320	75 65	24,000 20,800	320	nd piping	21,12 1,60 175,00
	Design drawings and specifications shall include: Design of Site pr systems, removal of surrounding contaminated soils and site rectar Remedial Design Workplan Research and Review Existing Site Conditions Siting and Surveying Procurement Document Package	ecaration, utilities, the	mal barriers, tani 1 fts 1 fte 1 ske	320	320 320	320 320	75 65	24,000 20,800	320	nd piping	21,12 1,60 175,00
	Design drawings and specifications shall include: Design of Site presents, removal of surrounding contaminated soils and site rectar Remedial Design Workplan Research and Review Existing Site Conditions Siting and Surveying Procurement Document Package Total Title Design Package	eparation, utilities, their	1 fte 1 fte 1 fte 1 site 50 dwgs	320	320 320 40	320 320 40	75 65	24,000 20,800	320	nd piping	21,1: 1,6: 175,0:
	Design drawings and specifications shall include: Design of Site pr systems, removal of surrounding contaminated soils and site rectar Remedial Design Workplan Research and Review Existing Site Conditions Siting and Surveying Procurement Document Package	eparation, utilities, their	1 fts 1 fts 1 site 50 dwgs	320 3,500 naiysis Reporti	320 320 40	320 320 40	75 65 40	24,000 20,800 1,600	320 175,000		21,12 1,60 175,00 221,72
	Design drawings and specifications shall include: Design of Site presystems, removal of surrounding contaminated soils and site rectar Remedial Design Workplan Research and Review Existing Site Conditions Siting and Surveying Procurement Document Package Total Title Design Package Site Characterization - including: Sample Collection Materials	eparation, utilities, their	1 fte 1 fte 1 fte 1 site 50 dwgs	320	320 320 40	320 320 40	75 65	24,000 20,800	320	2,500	21,12 1,60 175,00 221,72
	Design drawings and specifications shall include: Design of Site presystems, removal of surrounding contaminated soils and site rectar Remedial Design Workplan Research and Review Existing Site Conditions Siting and Surveying Procurement Document Package Total Title Design Package Site Characterization - including: Sample Collection Materials	eparation, utilities, their	1 fts 1 fts 1 site 50 dwgs	320 3,500 naiysis Reporti	320 320 40	320 320 40	75 65 40	24,000 20,800 1,600	320 175,000		24,00 21,12 1,60 175,00 221,72

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D. J. KUHNS

Project

WAG-1 OU 1-10 SITE V9/18 DRAFT ROD COST ESTINATE
WASTE SITE V-9/18 - VITRIFICATION OPTION
TAN - INEEL

Type of Est.

Planning

File No.

6950-4

Date

07/26/99

547,993

ACCT. DESCRIPTION E.V. MAT'L MAT'L UT. UNIT LAB. TOTAL LABOR LABOR MAT'L OTHER TOTAL NO. PH UNIT COST HAS LAB. HRS. RATE COST COST COST COST Remedial Action - Construction Subcontract #1 of 3 Site Prep: Grading, Leveling, Gravel Base 150'x50' 1 lot 50,000 50,000 50,000 Temp. Overhead Powerline(1/2 ml. Overhead) 1 lot 250,000 250,000 250,000 Temporary Potable 4,000 Gal. Water Truck 6 mths 4,000 24.000 24,000 Temporary Propane (3-1,000 Gal. Tank/Truck) 8 mths 4.000 24,000 24,000 Temporary Air Compressor (185 ctm Trailer Mtd) 10,000 gal 0.65 6,500 1.000 7,500 Temp. Pads (polyliner,sand & gravel) 50' x 50' 3 ea 5.000 15,000 15,000 Temporary Fending and Signage 200 # 10 2.000 2,000 Shoring and Piling Around Tanks (25 If Deep) 260 N 700 182,000 182,000 **Excavate Soils Around Tanks** 1400 cy 50 70,000 70,000 Hand Excavation Around Tanks and Piping 100 cv 2 200 60 12,000 12,000 Temporary Tent Structures 3 88 10.000 30,000 30,000 Cut/Box Piping & Place in Hood Area For Treatment 500 H 0.08 160 40 6,400 0.500 12,900 Cut and Install Tank Vents 12 ea 500 16 192 160 30,720 6.000 36,720 Fill Tanks With Zeolite or Petroset 50 baos 100 1.45 73 160 11,600 5,000 16,600 Place Starter Planes For ISV Treatment 1 lot 10,000 10,000 10,000 **Excavate For Thermal Barrier Walts** 350 cy 20 7.000 7,000 Thermal Barrier - 6" Precast Refractory Wall (20' Deep) 160 H 500 60,000 80.000 Gravel Ventilation Wall - 12" (20' Deep) 120 cy 25 3,000 3,000 Haul-in Clean Fill Outside of Hood Area 800 cy 10 8,000 8,000 Machine Relocate Excavated Contaminated Soils 500 cv 10,000 10,000 Hand Relocation of Contaminated Soils 200 cy 400 60 24,000 24,000 Mobilization and Demobilization 1 lot 10,000 10,000 10.000 Subtotal Subcontractor Directs 884,720 Subcontractor Overhead and Profit @ 26% 234,451 Total Subcontractor Directs and indirects #1 of 3 1,119,171 Secondary Waste Handling Haul and Disposal of PPE's/Filters/Red. Soits at INTEC ICDF 700 cv 104 72.800 72,800 Transport and Disposal of Secondary Waste Allowance 10,000 gal 100 1,000,000 1,000,000 Total Subcontractor Directs and Indirects and Secondary Waste Handling 2,191,971 Procurement and G&A Fees 354,197 Total Subcontractor Cost 2,546,168 Project/Construction Management for Subcontract #1

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Project

WAG-1 OU 1-10 SITE V9/18 DRAFT EOD COST ESTIMATE
WASTE SITE V-9/18 - VITRIFICATION OPTION

Type of Est.

Planning

e No. 6950-4

Date

ACCT.	DESCRIPTION	E,V,	MAT'L	MAT'L UT.	UNIT LAB.	TOTAL	LABOR	LABOR	MAT'L	OTHER	TOTAL
Ю.		P,H	UNIT	COST	HRS	LAB. HRS.	RATE	COST	COST	совт	COST
	in-Situ Vitrification Treatment Subcontract #2 of 3										
<u> </u>	Remedial Design Support										
	Engineering and Project Management Support		1 fte		1600	1.600	125	200,000			200.00
	Review of CERCLA Documentation		1 fte		640	640	125	80,000			80,00
	Systems Testing and Operational Readiness Reviews		4 fte		320	1,280	125	160,000			160.00
	Site Preparation		-					•		1	
	Placement of Starter Planes and Vent Pipes		1 lot	10,000					10,000	<u> </u>	10.00
	Equipment Procurement and Mobilization		-								
	Hood Structure Materials and Fabrication		1 lot	300,000					300,000	· · · · · · · · · · · · · · · · · · ·	300.00
	Moveable Electrode Feeders Mat & Fab.		1 lot	200,000					200,000	<u> </u>	200,00
	Mobilization to INEEL										
	Initial Hood, Equipment and Utility Hookup/Setup		1 lot	300,000					300,000		300,0
	TAN V-Tanks V1,2,3 ISV Melting Operation		1 lot	1,400,000					1,400,000		1,400,0
	Relocate Contaminated Soils Over Tank Area	1 1 1	150 cy	20					3,000		3.0
	Perform Top Down Melt On Soils		225 tons	750			_		168,750		168.7
	Hood Mobilization and Setup on Tank V-9		1 lot	750,000					750,000		750,0
	ISV Equipment Usage Rate Charge	i	1 lot	300,000					300,000		300,00
	Operations Process Sampling and Analysis		1 lot	200,000					200,000		200,0
	Decontamination and Demobilization		1 lot	325,000			•		325,000		325.0
	Miscellaneous: Consumables Allowance (PPE's, Tools, etc.)		1 lot	25,000			•		25,000		25,0
	Subtotal Subcontractor Directs		· · ·								4,421,7
	Bubcontractor Profit @ 10%	i							L		442,1
	Total Subcontractor Directs and Indirects #2 of 3										4,863,9
	Procurement and G&A Fees										621,39
	Total Subcontractor Cost										5,485,3
	Project Operations Oversight/Management										
	System Testing and Operational Readiness Review		8 fte		640	5,120	70	358,400			358.4
	Treatment/Operations Support and Oversight Personnel		8 fts		1,280	10,240	70	716,800			716.8
	Support equipment: Forldift, Crane, Truck With Operators/Orivers		1 lot		960	960	230	220,800	-	<u> </u>	220,B
	Project Operations Oversight/Management			T						<del>                                     </del>	1,296,0

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Project

WAG-1 OU 1-10 SITE V9/18 DRAFT ROD COST ESTIMATE

WASTE SITE V-9/18 - VITRIFICATION OPTION
TAN - INEEL

Type of Est.

Planning

No. 6950-4

Date

TAN - INEEL	
D. J. KUHNS	

ACCT.	DESCRIPTION	E,V,	MATIL	MAT'L UT.	UNIT LAB.	TOTAL ·	LABOR	LABOR	MAT'L	OTHER	TOTAL
NO.		P,H	UNIT	COST	HRS	LAB. HRS.	RATE	COST	COST	COST	COST
	Title Design Construction Document Package - For Construction St	ubcontract #3	of 3								
	Siting and Surveying		3 fte		8	24	40	960			960
	Final Design Construction Document Package		8 dwgs	3500			1		28,000		28,000
	Total Title Design-Package										28,960
	Remedial Action - Construction Subcontract #3 of 3	<del></del>								-	
	Site Preparation for Cap and Monitoring Well									<del> </del>	<del></del>
	Cut Sheet Pilings/Dispose/Prep Site For Cap		1 lot	<del></del> :	80	80	160	12,800		<del></del>	12,800
	Monitoring Wells 4" dis. x 20" Deep		4 eg	10.000	Included	- 50	100	12,000	40.000	<del></del>	40,000
	Lysimeter/Tensiometer and Vapor Ports		4 00		Included				12,000		12,000
	Monitoring Equipment (B&K Analyzer, Tedler Bags, etc)		1 lot	35,000					35,000		35,000
-	Mobilization & Demobilization		1 crew	10,000					10,000	<del></del>	10,000
	Soil Cap								10,000	<del></del>	10,000
	Soil Fill Leveling Course		200 cy	6	Included				1,200	<del> </del>	1,200
	Mine Low Perm Soil		1,600 cy	3	Included				4,800	<del>  </del>	4,800
	Import Low Perm. Soil		1,600 cy	7	Included				11,200	<del></del>	11,200
	Place and Compact Soil		1,600 cy	4	Included				6,400		6,400
	Vegetate Cover		1 ls	500					500		500
	Surveying: Grades, Lines, and Levels		3 fte		40	120	40	4,800	300		4,800
	Reclamation Seeding		1 is	1,000		720		1,000	1,000	<del>                                     </del>	1,000
	Mobilization & Demobilization		1 crew	10,000		•			10,000		10,000
	Access Restriction Fence								10,000		70,000
	6' Security Fence - 1 gate		120 M	25		-			3,000		3.000
	Surface Water Drainage		120 lf	5					600		600
	Subtotal Subcontractor Directs										153,300
	Subcontractor Overhead and Profit @ 30%										45,990
	Total Subcontractor Directs and Indirects #3 and #3						•••••				199,290
	Procurement and G&A Fees										79,716
	Total Subcontractor Cost										279,006
	Project/Construction Management for Subcontract #3 of 3	<del> </del>			-						
· .		<del></del>					-				59,787

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Project

WAG-1 OU 1-10 SITE V9/18 DRAFT ROD COST ESTIMATE

MASTE SITE V-9/18 - VITRIFICATION OPTION
TAN - INEEL

Type of Est.

Planning

File No.

6950-4

07/26/99

D. J. KUENS

ACCT.	DESCRIPTION	E,V,	MATL	MAT'L UT.	UNIT LAB.	TOTAL	LABOR	LABOR	MATL	OTHER	TOTAL
NO.		P,H	UNIT	COST	HRS	LAB. HRS.	RATE	COST	cost	COST	COST
	Remedial Action - Operations (100 Year Duration)										
	Program Management									·	
	Coordination/Oversight of Technical Support		0.5 fte		200	100	75	7,500			7,500
	Coordination with Agency Participants		0.5 fte		80	40	75	3.000			3,000
·	Cost and Schedule Control		0.5 fte		59	30	65	1,924			1,92
	Ensure Compliance of Gov't Regulation		0.5 fte		32	16	70	1,120			1,120
	Reviews		0.5 fte		32	18	65	1,040			1,04
	Audit Preparation and Coordination	11.5	0.5 fte		32	16	65	1,040		<del></del>	1,040
	Annual Operations and Maintenance Reports		0.5 fte		40	20	65	1,300			1,300
	Total Cost (Per Year)					238		· · · · · ·			16,920
	Program Management Costs - 100 Year Duration		100 yms	18,920				-	1,692,000		1,592,00
									******		
	WAG-Wide RA 5 Yr. Review - (Cost Per Each, Required (1) FTE	For Years 2 thru	5; (1) FTE in (5)	Yr. Increments	for 6 thru 95)						
	RA Report Preparation		23 утв		360	8,280	75	621,000			621,00
	Reviews and Comment Resolution		23 yrs		160	3,680	75	276,000			276,00
	WAG-Wide RA 5 Yr. Reviews For 100 Years										897.00
						·					
	Remediai Design										
	Added Institutional Controls - Assumed No Further Controls Req	uired Other Than	the Reviews Sta	ated Above.	<del>*</del>				<u> </u>		-
	Total Added Institutional Controls - 100 Year Duration										NA
			· · · · · · · · · · · · · · · · · · ·								
	Caretaker/Maintenance										
	Caretaker		0.1 ftm		1,680	188	75	14,100			14,10
	Cap Maintenance		7800 sf	0.04					312	- t-	31
	Area/Access Materials and Repair		12 mos.	500				* **	6,000		6,00
	Caretaker/Maintenance Cost Per Year										20,41
_											=0,41
	Caretaker Cost - 100 Year Duration		100 yrs	20,412					2,041,200		2,041,20
			<del></del>						,,		

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Project

WAG-1 OU 1-10 SITE V9/18 DRAFT ROD COST ESTIMATE				
WASTE SITE V-9/18 - VITRIFICATION OPTION	Type of Est.	Planning	File No.	6950-4
TAN - INEEL	• • • • • • • • • • • • • • • • • • • •			2330 4
D I MINNS				

ACCT.	DESCRIPTION	E,V,	MAT'L	MAT'L UT.	UNIT LAB.	TOTAL	LABOR	LABOR	MATL	OTHER	TOTAL
NO.		PH	UNIT	COST	HRS	_LAB. HRS.	RATE	COST	COST	COST	COST
	Operations, Maintenance, Materials & Disposal		NA								NA
					1						
	D&D of Facilities		N/A								N/A
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	Surveillance and Monitoring (annual sampling & monitoring activities) - Assumes all groundwater monitoring is conducted by Others										
·	Air Sampling/Monitoring, Maint. Insp./Report	,	100 yrs	NOT INCLUDE		J. (1)			r ·	т	NOT INCLUDE
	Yearly Sampling/Characterization (Vadose Zone)		100 yrs	2,500					250,000		NOT INCLUDE 250,00
	5-Year Review Report		20 times	INCLUDED A		R REVIEWS			230,000		230,00
	Surveillance and Monitoring Costs - 100 Year Duration				1				<u> </u>		250,00
									<del> </del> -	<del> </del>	230,00
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